

Data Mining of Students' Performance Using Artificial Neural Network: Turkish Students as a Case Study

Authors : Samuel Nii Tackie, Oyebade K. Oyedotun, Ebenezer O. Olaniyi, Adnan Khashman

Abstract : Artificial neural networks have been used in different fields of artificial intelligence, and more specifically in machine learning. Although, other machine learning options are feasible in most situations, but the ease with which neural networks lend themselves to different problems which include pattern recognition, image compression, classification, computer vision, regression etc. has earned it a remarkable place in the machine learning field. This research exploits neural networks as a data mining tool in predicting the number of times a student repeats a course, considering some attributes relating to the course itself, the teacher, and the particular student. Neural networks were used in this work to map the relationship between some attributes related to students' course assessment and the number of times a student will possibly repeat a course before he passes. It is the hope that the possibility to predict students' performance from such complex relationships can help facilitate the fine-tuning of academic systems and policies implemented in learning environments. To validate the power of neural networks in data mining, Turkish students' performance database has been used; feedforward and radial basis function networks were trained for this task; and the performances obtained from these networks evaluated in consideration of achieved recognition rates and training time.

Keywords : artificial neural network, data mining, classification, students' evaluation

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